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Abex

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An IC Industries Company

Memorandum

Date: May 27, 1980

Subject: NON-ASBESTOS MATERIALS

From: B. Iwarsson

To: Steve Conway

On Frank Herlihy's request, I am hereby submitting a summary on the status of our non-asbestos program.

TECHNOLOGY

First, it should be realized that the technology to produce friction materials with non-asbestos formulations has existed for many years. The problem has been to do so without a major price and weight penalty. The most common solution was based on a resin-bonded metallic formulation; and, over the years, we have successfully produced blocks, strips and disc brake parts on this basis. However, until recently, the only serious commercial application of RBM materials was to be found in high performance passenger car disc brakes. This technology was developed by our European operation and later adapted for application in the U.S. Early in 1979, we developed a non-asbestos/non-metallic formulation for strip linings. After considerable dynamometer and vehicle tests, a revised version was introduced to the marketplace in 1980.

In order to produce the same basic formula in blocks, we first had to solve some manufacturing process problems. This was accomplished in the Spring of 1980. The blocks are currently being dynamometer and vehicle tested by Abex as well as by Rockwell and Eaton. We expect to introduce these blocks in commercial quantities later this year.

ASBESTOS REGULATIONS

The current limit of $2f/CM^3$ is in jeopardy. A new limit of $0.2f/CM^3$ has been proposed by NIOSH and OSHA. Although implementation might be delayed by court action, the end of asbestos as a raw material for friction products is in sight.



MARKET

Strip Lining -- Until so legislated, the market would probably not demand non-asbestos materials for the reason that they are asbestos-free. However, the market might demand non-asbestos materials based on their technical capabilities and performance characteristics. And that is precisely the essence of our marketing program for these new materials. This new generation of friction materials offers a significant improvement in wear rate for both the lining and the drum. The fact that this first commercial application of non-asbestos/non-metallic formulations was made for the school bus market has further improved the reception it has received.

Block -- We are currently road testing non-asbestos/non-metallic blocks that have been dynamometer tested and look extremely good. As previously stated, introduction of asbestos-free blocks in commercial quantities will take place later this year and will probably have an immediate application in those areas where drum wear has been a major problem. Again, it will be for technical reasons that this material finds a niche in the marketplace

Disc Brake -- Other than RBM materials, we do not have a viable non-asbestos formulation at this time. However, we do expect to be testing a new non-asbestos/non-metallic formulation before the end of the year.

MARKETING

During 1979, we had friction material manufacturers announce their intention to have a complete non-asbestos line by 1981 or 1982. Shortly thereafter, some of them introduced the first formulations. Abex elected to keep a very low profile since our materials were still being tested and reformulated.

Since new materials always are subject to more rigorous testing by the O.E. manufacturer, we elected to do our homework thoroughly before introducing our new formulations. This paid off: our competitors failed with their candidates, and we succeeded with ours. When we knew that we had a viable product, it was introduced under the name of STAR LINE. This name was arrived at after thorough evaluation of other possibilities; such as, "XL," "Tiger," and "Alpha," etc., all of which were discarded for one reason or another. The name STAR LINE applies to all non-asbestos formulas; the metallic version is called STAR MET.

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All STAR LINE materials have at least one thing in common: they are high quality, high performance materials that thus cost more than other formulations. In summary, I would like to point out that the new STAR LINE has been exceptionally well received in the marketplace. However, I hasten to also point out that requirements from the Aftermarket are extremely small; and in the O.E. market, our customers' interest is primarily based on a concern for anti-asbestos legislation.

Please find enclosed also some samples of existing and future advertising programs.

B. Iwarsson

BI/ad

cc: F. Herlihy

Enclosures